

NON-PUBLIC?: N  
ACCESSION #: 89121201165  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: VOGTLE ELECTRIC PLANT GENERATING PLANT UNIT 2

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DOCKET NUMBER: 05000425

TITLE: SPURIOUS VALVE OPERATIONAL LEADS TO MANUAL REACTOR  
TRIP

EVENT DATE: 11/05/89 LER #: 89-029-00 REPORT DATE: 12/04/89

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION:  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: R. M. ODOM NUCLEAR SAFETY AND COMPLIANCE

TELEPHONE: 404-826-3201

COMPONENT FAILURE DESCRIPTION:  
CAUSE: B SYSTEM: SD COMPONENT: SEAL MANUFACTURER: F125  
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On 11-5-89, plant personnel were returning a Heater Drain Tank High Level Dump Valve, 2LV-4333, to service following replacement of valve packing and gaskets. The valve was isolated from the Heater Drain Tank and operators noticed it indicated 30% open. To check operability, the operators isolated the air line to the valve, whereupon it went full open, as expected. Attributing the 30% opening to a valid demand signal, operators began to open the valves which had isolated 2LV-4333. At this point, the operators noticed steam and water coming from the packing.

The 30% open valve caused the heater drain tank to dump to the main condenser. This resulted in low main feedwater pump suction pressure

which caused the pump to trip. In addition, the standby condensate pump failed to start on low feedwater pump suction pressure. The reduced feedwater flow resulted in a rapid decrease in steam generator water levels. Anticipating an automatic reactor trip, control room operators initiated a manual reactor trip with steam generator levels at 19% (narrow range indicator) at 1223 CST.

Valve 2LV-4333 moved to the 30% open position due to a defective o-ring (which was replaced) in the valve actuator. The standby condensate pump failure to start was due to its breaker being improperly racked in. The breaker was racked in properly and the pump tested successfully.

END OF ABSTRACT

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#### A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73(a)(2)(iv) because an unplanned actuation of the Reactor Protection System occurred.

#### B. UNIT STATUS AT TIME OF EVENT

At the time of this event, Unit 2 was operating in Mode 1 (Power Operation) at 100% rated thermal power. Other than that described herein, there was no inoperable equipment which contributed to the occurrence of this event.

#### C. DESCRIPTION OF EVENT

On 11-5-89, plant personnel were adjusting the Steam Generator Blowdown (SGBD) condensate cooling water return flow to the heater drain tanks. Additionally, plant equipment operators (PEO's) were returning to service the Train A Heater Drain Tank High Level Dump Valve, 2LV-4333, following replacement of the valve packing and gaskets. Prior to opening the valves isolating 2LV-4333, the PEO's noticed that 2LV-4333 was indicating 30% open. To check operability, they isolated the air supply line to the valve, whereupon it went full open, as expected. They attributed the 30% opening to a valid demand signal and then proceeded to re-open the air supply line and open the manual isolation valves which had isolated 2LV-4333 during the maintenance work. At this point, they noticed steam and water coming from the 2LV-4333 packing. Opening of the isolation valves was stopped while the PEO's sought further direction before continuing the process.

With 2LV-4333 30% open, the Heater Drain Tank began dumping to the main condenser. This caused the heater drain pump to isolate on drain tank low level which resulted in a low suction pressure alarm for both the main feedwater pumps. As the suction pressure dropped, the standby condensate pump received a signal to automatically start but failed to do so. The Balance-of-Plant (BOP) operator attempted to manually start the standby condensate pump with no success. The BOP operator began a power reduction to avoid a main feedwater pump trip, which subsequently occurred due to the low suction pressure. The decrease in feedwater flow and the resultant decrease in steam generator (SG) water levels (to 19% narrow-range) led the Reactor Operator (RO) to manually trip the reactor at 1223 CST and a normal reactor trip ensued. Control rods inserted, the Main Feedwater System isolated and the Auxiliary Feedwater System actuated as designed. Control room operators responded to maintain SG water levels and the unit transitioned to normal operation in Mode 3 at 1240 CST.

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#### D. CAUSE OF EVENT

The direct cause of the reactor trip was the inability of the Control Room Operators to maintain SG water levels. Several factors contributed to this condition:

1. Valve 2LV-4333 moved to the 30% open position instead of remaining closed due to a defective o-ring in the valve actuator.
2. The PEOs' failed to restore the initial valve alignment when an unexpected condition occurred (water and steam leaking from the packing of valve 2LV-4333) due to an inadequate pre-job briefing. The PEO's were not explicitly advised by the Shift Supervisor (SS) on how to respond if an abnormality occurred.
3. The PEO's were not in constant communication with the control room to advise the BOP operator of the valve problem as it occurred. This led to the assumption that the 30% valve opening was due to a valid demand signal.
4. The activity involving the adjustments to SGBD condensate cooling water return flow had improperly taken priority over the control room personnel's monitoring of the PEO's activity.
5. The standby condensate pump's failure to start was due to its breaker being improperly racked in when last restored to service.

6. Investigators found that a similar level control valve incident occurred the previous week when restoring the ILV-4334 valve to service in Unit 1. However, personnel involved in the 11-5-89 event were not aware of the previous incident due to inadequate communications between shifts.

#### E. ANALYSIS OF EVENT

Control room operators responded properly to trip the reactor as SG water levels decreased. Main Feedwater isolated and Auxiliary Feedwater actuated as designed. No abnormalities were experienced as the trip and the subsequent recovery ensued. Based on these considerations, there was no adverse effect on plant safety or the health and safety of the public as a result of this event.

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#### F. CORRECTIVE ACTIONS

1. The defective o-ring was replaced and plant personnel are evaluating the need for o-ring replacement each time packing adjustments/replacements are performed.

2./3./4. The involved SS and PEO's have been counseled regarding the proper restoration to service of valve 2LV-4333. These cognitive personnel errors were the result of not adequately following approved administrative procedures and were not the result of any unusual characteristics of the work locations.

A memo has been added to the Shift Policy Book discussing the purpose and content of pre-briefings, the use of functional tests prior to restoring equipment to service, and the need for adequate communication with the control room during field activities.

5. The standby condensate pump breaker was properly racked in and tested successfully. The procedure used to restore the standby condensate pump to service is being re-evaluated for necessary changes. Refresher training on properly racking in 13.8 kV breakers will be included in non-licensed operator continuing training for 1990.

6. Management is stressing the use of operator logs in communicating abnormal operating experience.

## G. ADDITIONAL INFORMATION

### 1. Failed Components

Valve 2LV-4333 actuator o-ring supplied by Fisher Controls Corporation.

Part No. IH849806992

### 2. Previous Similar Events

There have been no previous reactor trips initiated by the LV-4333 valves' failure to remain closed.

### 3. Energy Industry Identification System Code

Main Steam System - SB

Main Feedwater System - SJ

Auxiliary Feedwater System - SA

Control Rod Drive System - AA

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December 4, 1989

the SOUTHERN ELECTRIC SYSTEM

W. G. Haiston, III  
Senior Vice President  
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ELV-01109

0135

Docket No. 50-425

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT  
LICENSEE EVENT REPORT  
SPURIOUS VALVE OPERATION LEADS TO MANUAL REACTOR TRIP

In accordance with 10 CFR 50.73, Georgia Power Company hereby submits the enclosed report related to an event which occurred on November 5, 1989.

Sincerely,

W. G. Hairston, III

WGH,III/NJS/gm

Enclosure: LER 50-425/1989-029

xc: Georgia Power Company  
Mr. C. K. McCoy  
Mr. G. Bockhold, Jr.  
Mr. R. M. Odom  
Mr. P. D. Rushton  
NORMS

U. S. Nuclear Regulatory Commission  
Mr. S. D. Ebner, Regional Administrator  
Mr. J. B. Hopkins, Licensing Project Manager, NRR  
Mr. J. F. Rogge, Senior Resident Inspector, Vogtle

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